ENVIRONMENTAL & REGULATORY SERVICES DIVISION
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Wisconsin
Department of Commerce

Program Letter
Bureau of Storage Tank Regulation
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Required Information for Corrosion Protection Applications Wisconsin ILHR 10 Flammable & Combustible Liquid Storage System

Preinstallation application and review is required for corrosion protection systems to be installed at new or existing aboveground or underground storage tank sites. These systems must be designed and submitted by qualified persons.

This document is designed to assist the corrosion specialist in preparation of an application that contains the minimum information required for conditional approval. General submittal guidelines can be found by requesting ERS-10025-P, vapor recovery requirements can be found by requesting ERS-10024-P. These documents are not intended to supersede the requirements of ILHR 10 or any other applicable code requirements.

Please provide the following information.

1. An application form (ERS-9) must accompany all applications.
2. Fees must be included with application.
3. Plans must conform to the applicable requirements of ILHR 10.10, to include a materials list of **ALL** equipment or components to be installed in conjunction with the corrosion protection system.
4. **All** plans involving cathodic protection must have the CP system designed by a corrosion specialist, cathodic protection specialist, or a Professional Engineer with verifiable corrosion experience. Plans must include documentation of preparation by a qualified person as noted above.
5. Provide documentation of tank and/or pipe installation date and tank ID numbers.
6. Provide standard(s) used to evaluate storage tank for the application of cathodic protection and site data collected to perform evaluation.
7. Provide standard(s) used to evaluate pipe for the application of cathodic protection and the site data collected to perform the evaluation.
8. If ASTM's Emergency Standard for Alternative Procedures for the Assessment of Buried Steel Tanks Prior to the Addition of Cathodic Protection (ES 40-94) is used, all site specific test data must be submitted to support application.
9. Applications relying on ES 40-94 must submit documentation that the protocol meets the requirements of ES 40-94, or provide a Materials Approval to document that requirements have been met.
10. Provide coating resistance, coating efficiency, soil type, resistivity, pH etc and other site specific data collected to determine system requirements.
11. Provide all calculations used to determine system requirements.
12. Provide anticipated current requirement for impressed current systems.
13. Provide location of rectifier for impressed current systems.
14. Provide type, size, location and burial depth of all anodes.
15. Provide location of all test points.
16. Provide location and burial depth of all subsurface wiring for impressed current systems.

Electrical Requirements for Impressed Current Corrosion Protection Systems

The State Electrical Code Chapter ILHR 16 has requirements that apply to impressed current systems. These requirements are noted as follows.

1. Listing is required for materials that do not comply with ILHR 16 requirements. ILHR 16 adopts the National Electrical Code. All internal wiring must comply with NEC requirements.
2. Corrosion protection rectifier units shall not be located in a hazardous location unless specifically listed for that purpose.
3. Enclosures for systems must be of the appropriate type per NEMA standards for the location in which they are to be used. Typically a NEMA 3R enclosure is required for outdoor installation.
4. Conductors under streets, highways, roads, alleys, and parking lots shall have a minimum of 24 inches of cover per NEC Table 300-5.
5. Raceways shall be sealed where they enter and/or leave classified areas per NEC 501-5.

NOTE: Installation application and installation inspection forms for the ERS Division referencing a prefix of SBD, will be replaced with ERS as supplies are used up (example SBD-9 will become ERS-9).

Installation of Corrosion Protection Anode Drill holes

The increase in the number of corrosion protection (CP) applications and installations has brought to the attention of the Department, the fact that CP installers are failing to apply for all required permits prior to the installation of an impressed current system. *A Conditional Plan Approval from ERS does not replace any other state or local applications and/or permits that must be applied for and received prior to system installation.*

The following is a listing of some of the permits and approvals that may have to be acquired prior to the installation of a CP system.

- The Department of Commerce *requires* that a preinstallation plan review be conducted and Conditionally Approved. All reviews of CP systems are required to be submitted to ERS in Madison. *The exceptions are systems to be installed in areas covered by a full service LPO. Those applications shall be submitted to the respective full service LPO.*
- In many municipalities an electrical permit must be applied for, and on site during system installation. System installations must comply with all respective sections of the State Electrical Code ILHR 16 and NFPA70.
- Some municipalities require that a building permit be obtained prior to the system installation.
- The Department of Natural Resources requires permits for any anode drillholes greater than ten feet deep. The DNR requirement for anode drillhole approval is found in NR812. The following are excerpts from NR 812:

"***NR.812.07 Definitions.*** *The following terms are defined as follows:*
(33) "Drillhole" *Means an excavation, opening or driven point well deeper than it is wide that extends more than 10 feet below the ground surface."*

"NR 812.09 Department approvals*.*
(2) ***Approval application and submission****. The property owner or lessee shall obtain a written approval from the department. When an application is submitted by someone other than the owner of the subject property, the owner or authorized agent shall sign the*

application. Application information, outlines or forms may be obtained from the department. Applications shall provide information regarding the owner's and operator's name, address and firm name, if applicable, and any other information requested by the department. The department may request, but is not limited to descriptions or sketches of well construction, geology, pump installation, plumbing, possible contamination sources, property boundary, water use and, water sample results, depending on the type of application."

***"NR 812.26 Well and drillhole abandonment**.*
*(1) **Purpose**. The permanent abandonment of unused or contaminated wells or drillholes and noncomplying water systems is an important step in the protection of the local groundwater quality. Wells, especially those with structural defects, may act as conduits for the vertical movement of contamination from or near the ground surface to the groundwater or from one aquifer to another."*

Applications that are received without an approved Anode Drillhole Application and drawings will be reviewed, and if approved, include the condition that a DNR Anode Drillhole approval must be in place prior to system installation.

"NOTE: The Wisconsin Department of Natural Resources *requires prior approval* for the installation of cathodic protection drillhole(s), per Wis. Stats. Chapter 281 and Ch. NR 812, Wis. Adm. Code. The drillhole approval is required to be maintained on the construction site premises and available for inspection. Copies of the **Anode Drillhole Approval Application** may be obtained by calling (608)-266-0821. Questions regarding DNR drillhole installation and approval requirements should be directed to : DNR Bureau of Drinking Water and Groundwater, P.O. Box 7921, Madison, WI. 53707."

The Department of Natural Resources has requested that ERS forward to them, a copy of all conditional approval letters for impressed current system installations.

The DNR has advised us that the Drillhole Location Information section of the application must at a minimum include : county, township, street or grid address, and post office. *Please note:* The location information is to indicate the *actual site location, not the mailing address.* This information is similar to the project information requested on the ERS-9 Installation Application.

The Drillhole profile drawings submitted to the DNR to delineate construction criteria, per NR812, will also be acceptable to ERS plan review as part of the ERS submittal package.

During an impressed current CP installation it may be determined that additional anodes are required. ERS requires that a revision be submitted with new site drawings that show the location of the additional anode drillholes and calculations reflecting the change in site configuration and current requirements. The DNR also requires that information be provided regarding changes to the number and/or drillhole construction.

Corrosion Protection contractors and installers should contact the Department of Natural Resources, Bureau of Drinking Water and Groundwater, P.O. Box 7921, Madison, WI 53707 with any questions regarding the DNR installation and approval requirements for anode drillholes.

During onsite inspections of impressed current corrosion protection system installations the LPO may inquire if the corrosion protection system installer has the drillhole approval onsite. The DNR drillhole regulations and subsequent approval is outside the scope of ILHR 10, it will be at the discretion of the LPO to notify DNR if a drillhole approval is available for inspection.